



## United States Department of the Interior

BUREAU OF INDIAN AFFAIRS

PHOENIX AREA OFFICE

P.O. BOX 10

PHOENIX, ARIZONA 85001

IN REPLY  
REFER TO:

## BRANCH OF ENVIRONMENTAL QUALITY SERVICES

Office Number: (602) 379-6750

FAX Number: (602) 379-3833

TO: Alisa Wong (w-6-2)  
Mary GoldadeFAX NUMBER: 1-415-744-1873  
1-303-236-4383ORGANIZATION: EPAFROM: John Krause

## DESCRIPTION AND/OR MESSAGE:

Jeff sent me some information related to commentsSD and EC. Need to call him about the signaturepage. FYI.NUMBER OF PAGES: 6 (W/COVER SHEET)DATE SENT: 10-16-96

10/15/1996 17:11

303-236-4

USBR-GEOLOGY BRANCH

PAGE 01

**FAX**

October 15, 1996

**TO: John Krause, BIA  
Environmental Quality Services**

**FROM: JEFF BAYSINGER  
303-236-6904 X230  
FAX 303-236-4711**



**SUBJECT: Duck Valley**

**Here are some examples that will be useful for answering EPA comments. Two pages are signature sheet examples. The first sheet was from the overall Sampling Analysis Plan. The second is from the QA plan. The last pages cover water level measurements and LNAPL checking.**

**Total Pages (including cover) 5**

Section No.: 4.4  
Revision No.: 0.0/E  
Date: October 8, 1996  
Page: 4.4-9 of 42

6. Two-inch diameter threaded steel pipe will be used as protective casing around the PVC stickup. A 2-foot section of 2-inch diameter steel pipe (outer casing) will be driven into the ground a depth of about 1.5 feet leaving about 0.5 feet of stickup encasing the 4 inches of PVC stickup. A steel cap will be tightly screwed onto the top of the 2-inch steel pipe stickup, and the well number will be stamped or engraved on the cap. If an auger was used to drill the well, the outer steel casing will be cemented in place.
7. Upon completion of each shallow observation well all down hole equipment will be thoroughly decontaminated per FSP section 4.4.15.
8. The ground elevation, stick up heights, and coordinates of all installed wells will be surveyed per FSP Section 4.4.1. The depth and elevation of the water table will be measured per FSP Section 4.4.5. Measurement data will be recorded on the Groundwater Level Measurements Form (Figure 4.4.5-1).

#### 4.4.5 Water Level Measurements

**Rationale:** Obtain water table level and gradient data for the aquifers. The data will be integrated into the site conceptual model with data from the aquifer tests (Section 4.4.6). The model will be checked to verify if contaminant migration corresponds with groundwater flow.

Ground water level measurements in all shallow observation wells will be read monthly (as depth to ground water) to determine local and seasonal variation in groundwater gradients in the shallow aquifer at the RGTC Site. Groundwater levels in the existing monitoring wells will also be measured during each measuring event.

Each well will be surveyed in accordance with FSP Section 4.4.1 within 30 days after installation and prior to initial ground water level readings. Well surveys will include ground elevation of each well and height of stickup (measuring point) to the nearest one hundredth of a foot (0.01'). The survey data will become part of the permanent database record for each well and will be included on the well installation log and on the Ground Water Level Measurement Form (Figure 4.4.5-1) for subsequent (monthly) readings.

Prior to obtaining any water level measurements in the wells, appropriate detection methods will be used to determine if floating hydrocarbons (non-aqueous phase liquids - NAPL's) are present on top of the groundwater in these wells. Method of detection within the wells will be oil-water interface meters (e.g., ORS-1068 or the MMC 24012E100BS borehole models). If the layer is thick enough to be resolved by borehole instrument methods, then these instruments will be utilized to measure both the presence of NAPL's (in particular Light NAPL's) and the thickness of the floating product. Should LNAPL's be detected and documented during Stage 1 investigations, sampling protocols and analysis methods will be determined and designed in the Stage 2 FSP, and after approval by the EPA they will be implemented during Stage 2 field activities.

Depth to ground water will be measured from the measuring point at the top of stickup and will be recorded as Depth To Ground Water on the Ground Water Level Measurement Form (GWLM Form). A straight edge will be placed over the top of the well and the depth to ground water measurement will be

Section No.: 4.4  
Revision No.: 0.0/E  
Date: October 5, 1998  
Page: 4.4-10 of 42

read from the lower edge of the straight edge using an electric sounder (M-Scope) or a popper tape. Depth to groundwater measurements will be read twice to the nearest 0.01 foot to ensure accuracy, and entered on the GWLM Form. The sounder or tape will be in good condition with no alterations that might adversely affect accuracy. If the M-scope sounder is not incremented in tenths of feet then a scaling board or other suitable measuring device will be used in conjunction with the sounder to obtain reliable accuracy to one hundredth of a foot.

Ground water level readings will be entered into the database as ground water elevations, and referenced from surveyed ground elevation at each respective well. Ground water elevation for each well will be calculated by subtracting the measured depth to ground water from the sum of the surveyed ground elevation and height of the measuring point (well stickup) as shown on the bottom of the GWLM Form.

Any changes in height of the measuring point (such as vandalism) or ground elevation will be included as a note on the GWLM Form with a detailed explanation as to the cause and permanence of the change. The change will become part of the permanent record for future ground water level measurements.

Continuous water level recorders may be installed on some of the wells to monitor diurnal and other possible transient changes in water levels to help refine the hydrologic components of the preliminary conceptual model for the site. Evapotranspiration through landscape vegetation during the summer will cause a diurnal fluctuation in depth to the shallow water table as discussed in the previous section. If significant fluctuations are discovered, the continuous water level recorders will be used and the task will be changed in accordance with Section 4.6.

While geostatistical analysis (see 4.4.2) of the suspected upper clay aquitard top surface indicated insufficient pair spacing for sampling distance separation, no geostatistical analysis has been performed on the upper aquifer water levels. The reason no analysis was performed was due to a lack of sufficient data. Stage 1 temporary observation wells will gather sufficient information on water level elevations and the upper aquifer extent to provide a geostatistical design basis for Stage 2 well locations.

#### 4.4.6 Aquifer Tests

Two types of aquifer tests will be performed. The first type is a slug test to estimate hydraulic conductivity of the shallow aquifer. This is the aquifer in which the waste was buried. Slug test results will allow estimates of horizontal groundwater flow rates based on the water table elevation gradient. The second type of test will test the potential for downward migration from the shallow aquifer to the deeper aquifers.

Water quality sampling will be contaminant, general mineral, and tritium. Tritium concentration above and just below the shallow aquitard may demonstrate a significant water age difference.

All water generated during aquifer testing will be considered contaminated and will be containerized, for temporary storage, in DOT approved closed top 55 gallon steel or poly-drums. Containerized water will be stored and disposed of in accordance with FSP section 4.4.17 and the accompanying Waste Management Plan.

10/15/1996 17:11

303-236-4

USBR-GEOLOGY BR

PAGE 06

Section No.: Title  
Revision No: 0.0/5  
Date: October 4, 1996  
Page: 1 of 2

QUALITY ASSURANCE PROJECT PLAN  
FOR  
OPERABLE UNIT 2: Groundwater  
AT  
RALPH GRAY TRUCKING COMPANY SUPERFUND SITE  
FOR  
WESTMINSTER, CALIFORNIA

Bureau of Reclamation Interagency Agreement Identification No. DW14955128-01-0

Bureau of Reclamation

Jerry W. Wright 10-7-96  
Team Leader

James L. Kenney 10/7/96  
Quality Assurance Manager

Environmental Protection Agency Reviewers

REMEDIAL PROJECT MANAGER

Mr. Michael Osinski  
Environmental Protection Agency Region 9  
San Francisco, CA 94105-3901

EPA Quality Assurance Manager

EPA Quality Assurance Officer

Section No.: Title  
Revision No: 0.0/S  
Date: 10/5/96  
Page: 2 of 2

**Interagency Agreement (IAG):** Reclamation and EPA have made an IAG to investigate the Ralph Gray Trucking Company Site. The agreement Identification Number is DW14955128-01-0 and the agreement is based on the approved Statement of Work (dated April 9, 1995). This Sampling Analysis Plan describes how the investigations outlined in the Statement of Work and Work Plan will be performed.

**Approval signatures:**

Bureau of Reclamation

James W. Winger 10-7-96  
Team Leader

James L. Krining 10/7/96  
Quality Assurance Officer

Project Director 10/2/90

Environmental Protection Agency

**EPA Remedial Project Manager (Region 9)**